

FCC - TEST REPORT

Report Number : **60.792.20.005.01R01** Date of Issue : June 15, 2020

Model : **HG06610A-US, HG06610B-US**

Product Type : **Bluetooth speaker**

Applicant : **Lidl US, LLC**

Address : **3500 South Clark Street, Arlington, VA 22202**

Production Facility : **Goldfield Technology Co., Ltd.**

Address : **No.28 Lingxia Road, Qiaotou Town, Dongguan City, China**

Test Result : ☒ **Positive** ☐ **Negative**

Total pages including Appendices : 47

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2 Description of Equipment Under Test

Description of the Equipment Under Test

Product: Bluetooth speaker

Model no.: HG06610A-US, HG06610B-US

FCC ID: 2AJ9O-HG661

Rating: 1) 3.7 VDC (From internal 3.7 VDC rechargeable battery)
2) 5.0 VDC (From USB charging port)

Frequency: 2402MHz-2480MHz

Antenna gain: -0.58 dBi

Number of operated channel: 79

Modulation: GFSK, $\pi/4$ DQPSK

Auxiliary Equipment and Software Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.	S/N
Adapter	Apple	A1357	---
Computer	Lenovo	X220	0A72168

Auxiliary Software Used during Test:

DESCRIPTION	SOFTWARE NAME	VERSION	REMARK
RF Test Mode Software	FCC Assist	1.4	Provided by applicant

3 Summary of Test Standards

Test Standards

FCC Part 15 Subpart C 10-1-19 Edition Federal Communications Commission, PART 15 — Radio Frequency Devices, Subpart C — Unintentional Radiators

All the tests were performed using the procedures from ANSI C63.4(2014) and ANSI C63.10 (2013).

4 Details about the Test Laboratory

Site 1

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
 Building 12&13 Zhiheng Wisdomland Business Park,
 Nantou Checkpoint Road 2,
 Shenzhen 518052, P.R.China
 FCC Registration Number: 502708
 NVLAP Lab Code: 500067-0

Emission Tests	
Test Item	Test Site
FCC Part 15 Subpart C	
FCC Title 47 Part 15.205, 15.209 & 15.247(d) Spurious Radiated Emission	Site 1
FCC Title 47 Part 15.207(a) AC Line Conducted Emission	Site 1
FCC Title 47 Part 15.247(a)(1) 20dB & 99% Bandwidth	Site 1
FCC Title 47 Part 15.247(b) Peak Output Power	Site 1
FCC Title 47 Part 2.1051 & 15.247(d) Spurious Emissions at Antenna Terminals	Site 1
FCC Title 47 Part 15.247(d) 100kHz Bandwidth of band edges	Site 1
FCC Title 47 Part 15.247(a)(1) Minimum Number of Hopping Frequencies	Site 1
FCC Title 47 Part 15.247(a)(1) Minimum Hopping Channel Carrier Frequency Separation	Site 1
FCC Title 47 Part 15.247(a)(1) Average Time of Occupancy	Site 1
FCC Title 47 Part 15.203 & 15.247(b) Antenna Requirement	Site 1

Test Engineer information.

Engineer	Items
Reader Sang	All RF conducted items
Adam Yang	AC Line Conducted Emission and Spurious Radiated Emission

Test Environment information.

Ambient Temperature (°C):	24.6-27.4
Relative Humidity (%):	58.7
Atmospheric Pressure (mbar):	1016

4.1 Test Equipment Site List

Radiated emission Test – Site 1

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 26	101269	2019-7-6
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100398	2019-7-6
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	707	2019-6-28
Horn Antenna	Rohde & Schwarz	HF907	102294	2019-6-28
Wideband Horn Antenna	Q-PAR	QWH-SL-18-40-K-SG	12827	2019-7-12
Pre-amplifier	Rohde & Schwarz	SCU 18	102230	2019-7-6
Signal Generator	Rohde & Schwarz	SMY01	839369/005	2019-7-6
Attenuator	Agilent	8491A	MY39264334	2019-7-6
3m Semi-anechoic chamber	TDK	9X6X6	----	2020-7-7
Test software	Rohde & Schwarz	EMC32	Version 9.15.00	N/A

Conducted Emission Test – Site 1

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 3	101782	2019-7-6
LISN	Rohde & Schwarz	ENV4200	100249	2019-7-6
LISN	Rohde & Schwarz	ENV432	101318	2019-7-6
LISN	Rohde & Schwarz	ENV216	100326	2019-7-6
ISN	Rohde & Schwarz	ENY81	100177	2019-7-6
ISN	Rohde & Schwarz	ENY81-CA6	101664	2019-7-6
High Voltage Probe	Rohde & Schwarz	TK9420(VT9420)	9420-584	2019-6-30
RF Current Probe	Rohde & Schwarz	EZ-17	100816	2019-6-30
Attenuator	Shanghai Huaxiang	TS2-26-3	080928189	2019-7-6
Test software	Rohde & Schwarz	EMC32	Version9.15.00	N/A

20dB & 99% Bandwidth, Peak Output Power, Spurious Emissions at Antenna Terminals, 100kHz Bandwidth of band edges, Power Spectral Density – Site 1

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
Signal Generator	Rohde & Schwarz	SMB100A	108272	2019-7-6
Signal Analyzer	Rohde & Schwarz	FSV40	101030	2019-7-6
Vector Signal Generator	Rohde & Schwarz	SMU 200A	105324	2019-7-6
RF Switch Module	Rohde & Schwarz	OSP120/OSP-B157	101226/100851	2019-7-6

4.2 Measurement System Uncertainty

Measurement System Uncertainty Emissions

System Measurement Uncertainty	
Items	Extended Uncertainty
Uncertainty for Radiated Emission in 3m chamber 9kHz-30MHz	4.46dB
Uncertainty for Radiated Emission in 3m chamber 30MHz-1000MHz	Horizontal: 4.91dB; Vertical: 4.89dB;
Uncertainty for Radiated Emission in 3m chamber 1000MHz-25000MHz	Horizontal: 4.80dB; Vertical: 4.79dB;
Uncertainty for Conducted Emission at AC Power Line 150kHz-30MHz	3.21dB
Uncertainty for Conducted RF Power	2.13dB
Uncertainty for frequency test	0.6×10^{-7}

5 Summary of Test Results

Emission Tests				
FCC Part 15 Subpart C				
Test Condition	Pages	Test Result		
		Pass	Fail	N/A
FCC Title 47 Part 15.207(a) AC Line Conducted Emission	12-13	☒	☐	☐
FCC Title 47 Part 15.205, 15.209 & 15.247(d) Spurious Radiated Emission	14-17	☒	☐	☐
FCC Title 47 Part 15.247(a)(2) 20dB & 99% Bandwidth	18-23	☒	☐	☐
FCC Title 47 Part 15.247(b) Peak Output Power	24-29	☒	☐	☐
FCC Title 47 Part 2.1051 & 15.247(d) Spurious Emissions at Antenna Terminals	30-35	☒	☐	☐
FCC Title 47 Part 15.247(d) 100kHz Bandwidth of band edges	36-38	☒	☐	☐
FCC Title 47 Part 15.247(a)(1) Min. No. of Hopping Frequencies	49-40	☒	☐	☐
FCC Title 47 Part 15.247(a)(1) Min. of Hopping Channel Carrier Frequency Separation	41-42	☒	☐	☐
FCC Title 47 Part 15.247(a)(1) Average Time of Occupancy	43-44	☒	☐	☐
FCC Title 47 Part 15.203 & 15.247(b) Antenna Requirement	45	☒	☐	☐

6 General Remarks

Remarks

Client informs that the **HG06610B-US** have the same technical construction including circuit diagram, PCB Layout, components and component layout, all electrical construction and mechanical construction with **Bluetooth speaker, HG06610A-US**. The difference lies only on the different outlook/color of the different models. (Applicant's conformation letter shown at appendix A)

EMC tests were performed on model: **HG06610A-US**.

All measurement and test data in this report was gathered from the production sample serial number: HKG-01-0480663-003 (Assigned by TUV SUD)

This submittal(s) (test report) is intended for **FCC ID: 2AJ90-HG661**, complies with Section 15.203, 15.205, 15.207, 15.209, 15.247 of the FCC Part 15, Subpart C rules for the DSS grant.

The TX and RX range is 2402MHz-2480MHz

SUMMARY:

- All tests according to the regulations cited on page 8 were

☒ - Performed

☐ - Not Performed

- The Equipment Under Test

☒ - **Fulfills** the general approval requirements.

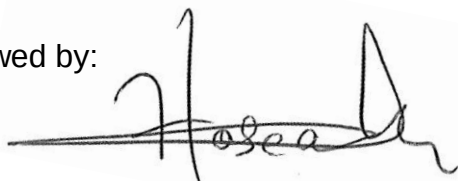
☐ - **Does not** fulfill the general approval requirements.

Sample Received Date: May 10, 2019

Testing Start Date: May 11, 2019

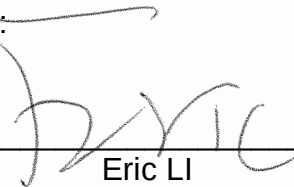
Testing End Date: May 25, 2019

Reviewed by:



Hosea CHAN
EMC Project Engineer

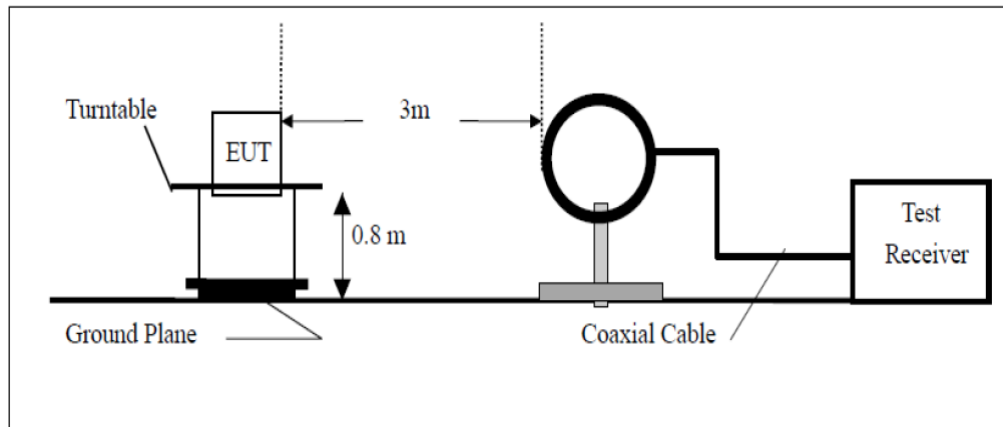
Prepared by:



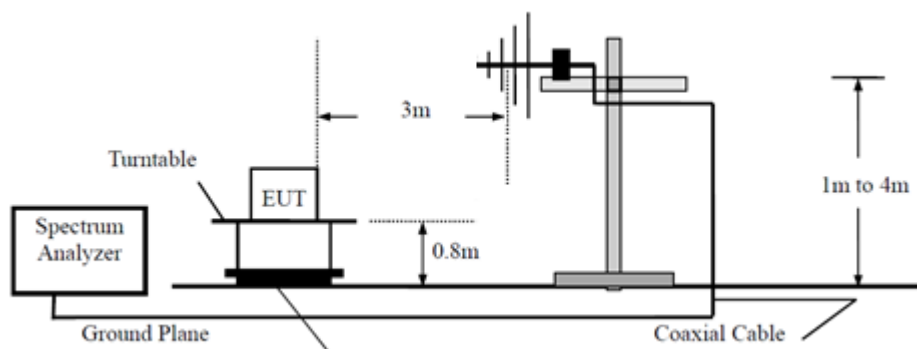
Eric LI
EMC Senior Project Engineer

7 Test Setups

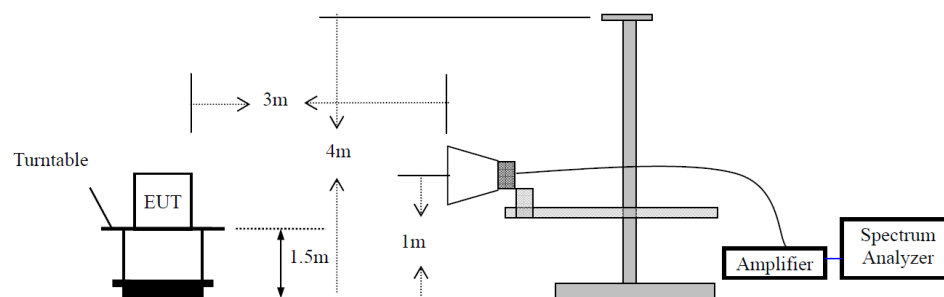
7.1 Radiated test setups 9kHz-30MHz



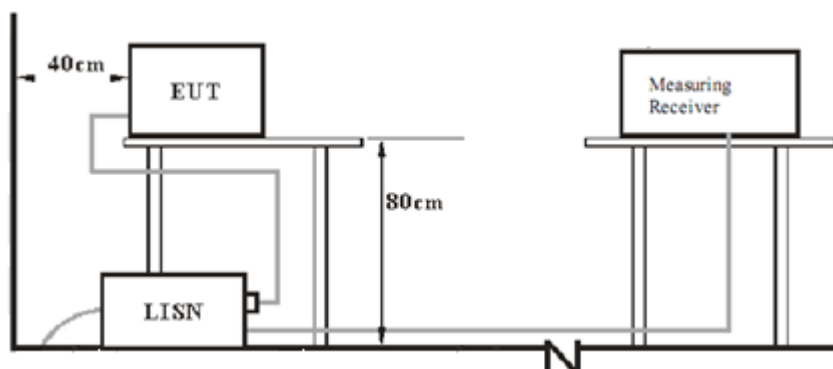
7.2 Radiated test setups Below 1GHz



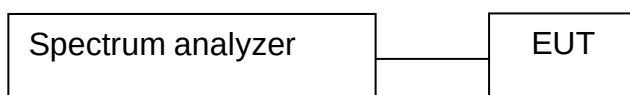
7.3 Radiated test setups Above 1GHz



7.4 AC Power Line Conducted Emission test setups



7.5 Conducted RF test setups



8 Emission Test Results

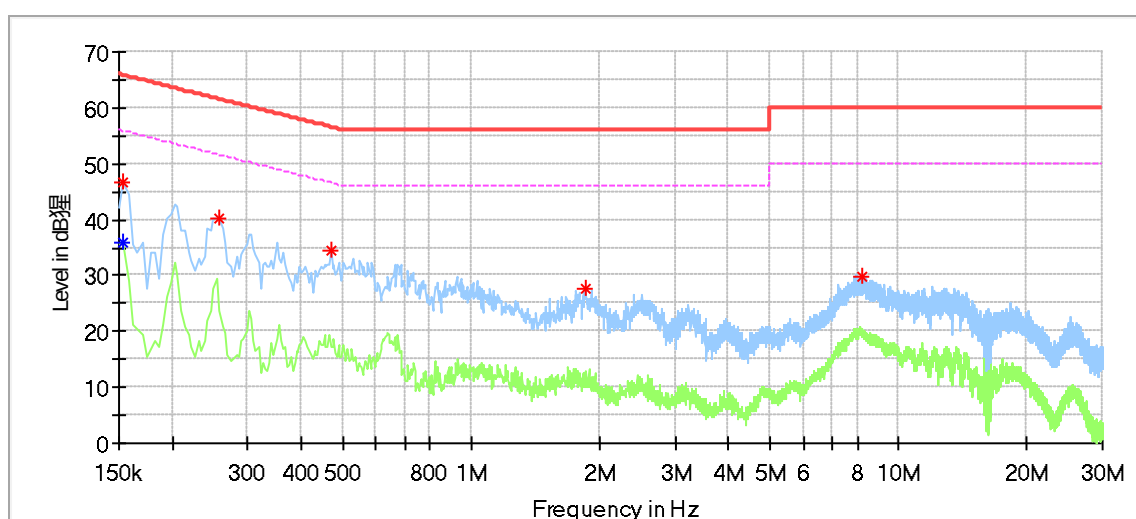
8.1 Conducted Emission

EUT: HG06610A-US
 Op Condition: Operated, BT link Mode
 Test Specification: FCC15.207, AC Mains, L Line
 Comment: 120VAC, 60Hz
 Test date: May 13, 2020

Test Result

☒ Passed

☐ Not Passed



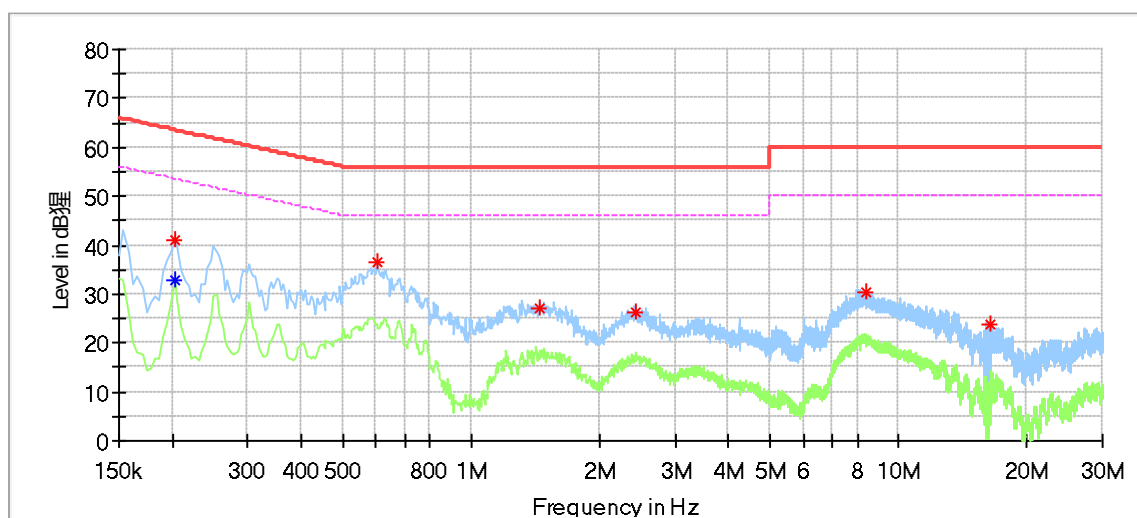
Frequency (MHz)	MaxPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Corr. (dB)
0.154000	---	35.88	55.78	-19.90	9.5
0.154000	46.74	---	65.78	-19.04	9.5
0.258000	40.26	---	61.50	-21.24	9.5
0.470000	34.33	---	56.51	-22.18	9.5
1.846000	27.55	---	56.00	-28.45	9.6
8.182000	29.97	---	60.00	-30.03	9.7

Conducted Emission

EUT: HG06610A-US
 Op Condition: Operated, BT link Mode
 Test Specification: FCC15.207, AC Mains, N Line
 Comment: 120VAC, 60Hz
 Test date: May 13, 2020

Test Result

☒ Passed
☐ Not Passed



Frequency (MHz)	MaxPeak (dBμV)	Average (dBμV)	Limit (dBμV)	Margin (dB)	Corr. (dB)
0.202000	41.22	---	63.53	-22.31	9.5
0.202000	---	32.78	53.53	-20.74	9.5
0.606000	36.44	---	56.00	-19.56	9.6
1.446000	27.19	---	56.00	-28.81	9.6
2.426000	26.37	---	56.00	-29.63	9.6
8.418000	30.36	---	60.00	-29.64	9.7
16.306000	23.82	---	60.00	-36.18	9.8

8.2 Spurious Radiated Emission

EUT: HG06610A-US
 Op Condition: Operated, TX Mode (DH5)
 (2402MHz channel is the worst case)
 Test Specification: FCC15.205, 15.209 & 15.247(d)
 Comment: 3.7 VDC
 Test date: May 13, 2020
 Remark: 9kHz to 1GHz

Test Result

☒ Passed

☐ Not Passed

Frequency MHz	Result dBμV/m	Limit dBμV/m	Margin dB	Detector PK/QP/AV	Ant. Polarity H/V	Corr. (dB)
51.286111	21.41	40.00	-18.59	Peak	H	14.6
56.782778	19.96	40.00	-20.04	Peak	H	14.1
97.253333	18.36	43.50	-26.14	Peak	H	12.5
105.282778	19.22	43.50	-24.28	Peak	H	13.0
208.533889	18.32	43.50	-25.18	Peak	H	12.2
354.357222	24.08	46.00	-21.92	Peak	H	15.7
46.328333	20.30	40.00	-19.70	Peak	V	14.7
50.154444	20.58	40.00	-19.42	Peak	V	14.7
94.558889	18.97	43.50	-24.53	Peak	V	12.0
107.330556	19.95	43.50	-23.55	Peak	V	12.8
197.702222	20.50	43.50	-23.50	Peak	V	12.0
236.125000	26.81	46.00	-19.20	Peak	V	13.1

Remark:

1. No obvious emission can be captured in the range 9kHz-30MHz.

Spurious Radiated Emission

EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2402MHz, DH5)
 Test Specification: FCC15.205, 15.209 & 15.247(d)
 Comment: 3.7 VDC
 Test date: May 15, 2020
 Remark: 1GHz to 25GHz

Test Result	
☒	Passed
☐	Not Passed

Frequency	Result	Limit	Margin	Detector	Ant. Polarity	Corr.
MHz	dBμV/m	dBμV/m	dB	PK/QP/AV	H/V	(dB)
1595.000000	45.99	54.00	-8.01	Peak	H	-8.7
2394.000000	48.44	54.00	-5.56	Peak	H	-3.9
4667.500000	49.33	54.00	-4.67	Peak	H	2.6
6970.000000	52.78	74.00	-21.22	Peak	H	7.1
6970.000000	37.81	54.00	-16.19	Average	H	7.1
12350.000000	48.01	54.00	-5.99	Peak	H	10.1
16897.000000	51.12	74.00	-22.88	Peak	H	16.5
16897.000000	40.25	54.00	-13.75	Average	H	16.5
1597.000000	46.74	54.00	-7.26	Peak	V	-8.6
2394.500000	46.03	54.00	-7.97	Peak	V	-3.9
5584.000000	50.81	54.00	-3.19	Peak	V	3.0
6793.500000	51.63	74.00	-22.37	Peak	V	6.6
6793.500000	38.12	54.00	-15.88	Average	V	6.6
12640.500000	47.73	54.00	-6.27	Peak	V	10.1
16965.000000	51.55	74.00	-22.45	Peak	V	16.5
16965.000000	39.85	54.00	-14.15	Average	V	16.5

Remark:

1. For these frequencies at which the measured peak value less than average limit 3dB or more, average value not been measured because average value will never great than peak value.

Spurious Radiated Emission

EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2441MHz, DH5)
 Test Specification: FCC15.205, 15.209 & 15.247(d)
 Comment: 3.7 VDC
 Test date: May 15, 2020
 Remark: 1GHz to 25GHz

Test Result	
☒	Passed
☐	Not Passed

Frequency	Result	Limit	Margin	Detector	Ant. Polarity	Corr.
MHz	dBμV/m	dBμV/m	dB	PK/QP/AV	H/V	(dB)
1600.000000	46.57	54.00	-7.43	Peak	H	-8.6
2989.000000	46.39	54.00	-7.61	Peak	H	-2.1
4303.500000	47.06	54.00	-6.94	Peak	H	2.0
6567.500000	51.81	74.00	-22.19	Peak	H	6.8
6567.500000	36.58	54.00	-17.42	Average	H	6.8
7322.500000	49.67	54.00	-4.33	Peak	H	6.5
17244.500000	51.09	74.00	-22.91	Peak	H	17.3
17244.500000	40.36	54.00	-13.64	Average	H	17.3
1179.000000	43.46	54.00	-10.54	Peak	V	-9.7
2438.000000	46.20	54.00	-7.80	Peak	V	-3.6
2977.500000	47.32	54.00	-6.68	Peak	V	-2.2
6350.000000	50.80	54.00	-3.20	Peak	V	6.0
7322.500000	48.98	54.00	-5.02	Peak	V	6.5
17750.000000	51.97	74.00	-22.03	Peak	V	17.7
17750.000000	41.27	54.00	-12.73	Average	V	17.7

Remark:

1. For these frequencies at which the measured peak value less than average limit 3dB or more, average value not been measured because average value will never great than peak value.

Spurious Radiated Emission

EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2480MHz, DH5)
 Test Specification: FCC15.205, 15.209 & 15.247(d)
 Comment: 3.7 VDC
 Test date: May 15, 2020
 Remark: 1GHz to 25GHz

Test Result	
☒	Passed
☐	Not Passed

Frequency	Result	Limit	Margin	Detector	Ant. Polarity	Corr.
MHz	dBμV/m	dBμV/m	dB	PK/QP/AV	H/V	(dB)
2852.000000	46.40	54.00	-7.60	Peak	H	-2.9
5023.000000	49.04	54.00	-4.96	Peak	H	3.0
6985.000000	52.02	74.00	-21.98	Peak	H	7.3
6985.000000	37.65	54.00	-16.35	Average	H	7.3
7439.000000	47.53	54.00	-6.47	Peak	H	5.9
10627.500000	47.35	54.00	-6.65	Peak	H	8.2
16853.500000	50.84	74.00	-23.16	Peak	H	16.8
16853.500000	39.87	54.00	-14.13	Average	H	16.8
2390.000000	49.13	54.00	-4.87	Peak	V	-3.9
3426.000000	47.16	54.00	-6.84	Peak	V	-1.2
5299.000000	49.63	54.00	-4.37	Peak	V	2.0
6500.000000	51.79	74.00	-22.21	Peak	V	6.6
6500.000000	37.16	54.00	-16.84	Average	V	6.6
12060.000000	47.53	54.00	-6.47	Peak	V	9.9
16753.000000	51.11	74.00	-22.89	Peak	V	16.5
16753.000000	40.36	54.00	-13.64	Average	V	16.5

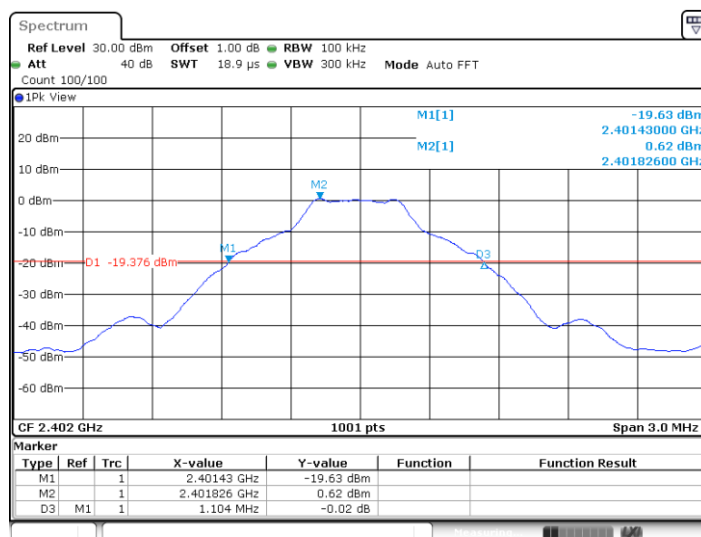
Remark:

1. For these frequencies at which the measured peak value less than average limit 3dB or more, average value not been measured because average value will never great than peak value.

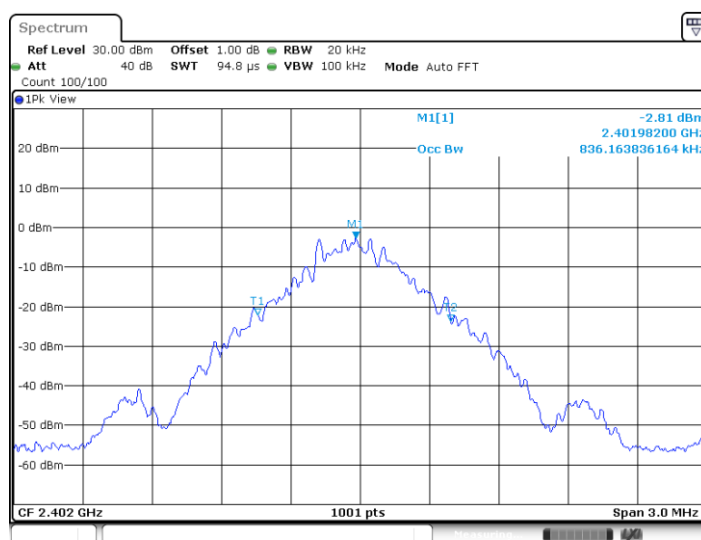
8.3 20dB & 99% Bandwidth

EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2402MHz, DH5)
 Test Specification: FCC15.247(a)(2), 20dB Bandwidth & 99% Bandwidth
 Comment: 3.7 VDC

Test Result

☒ Passed☐ Not Passed

Date: 21.MAY.2020 11:55:44



Date: 21.MAY.2020 11:55:55

20dB bandwidth	99% bandwidth
1.104 MHz	0.836 MHz

20dB & 99% Bandwidth

EUT:

Op Condition:

Test Specification:

Comment:

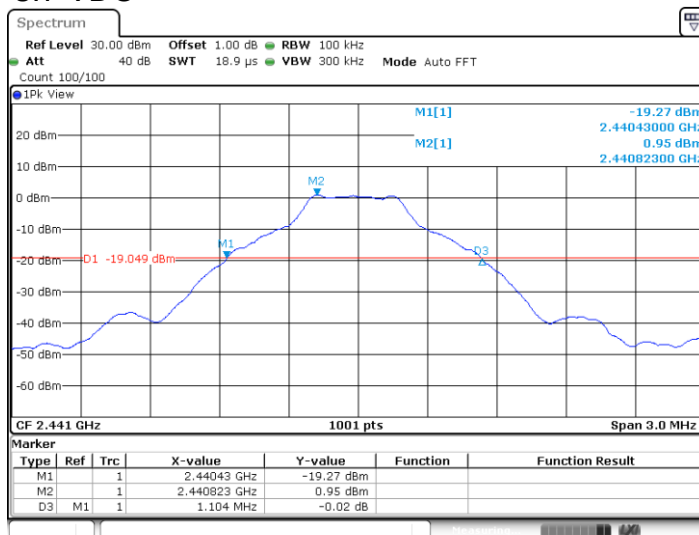
HG06610A-US

Operated, TX Mode (2441MHz, DH5)

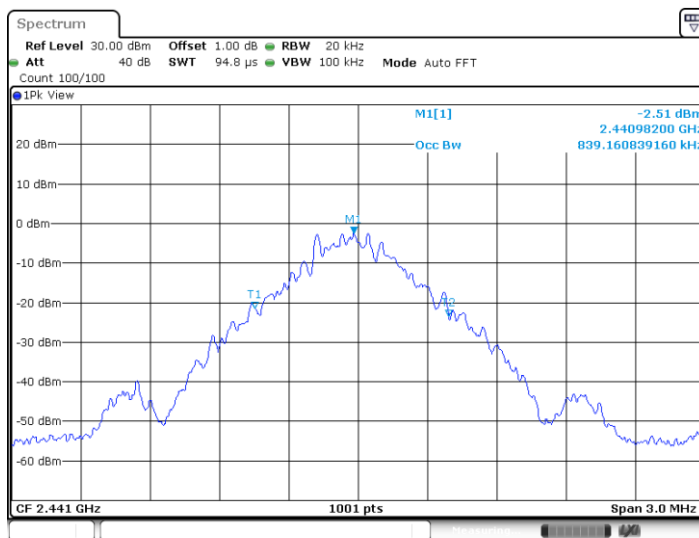
FCC15.247(a)(2), 20dB Bandwidth & 99% Bandwidth

3.7 VDC

Test Result

☒ Passed☐ Not Passed

Date: 21.MAY.2020 11:58:21



Date: 21.MAY.2020 11:58:32

20dB bandwidth	99% bandwidth
1.104 MHz	0.839 MHz

20dB & 99% Bandwidth

EUT:

Op Condition:

Test Specification:

Comment:

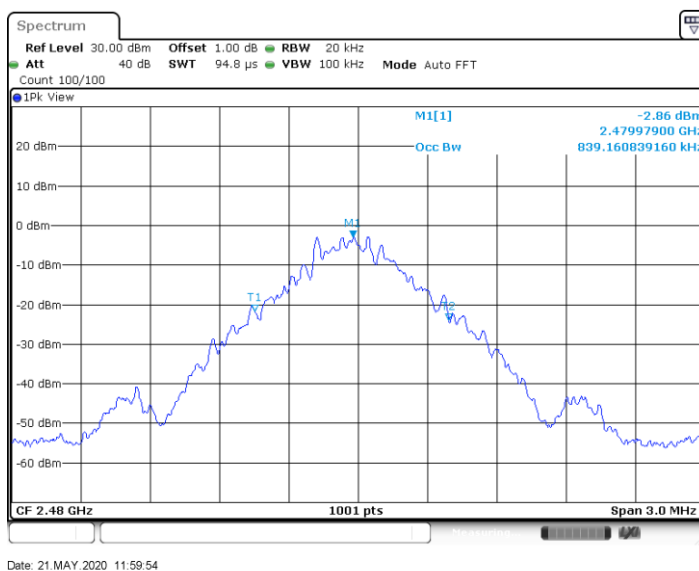
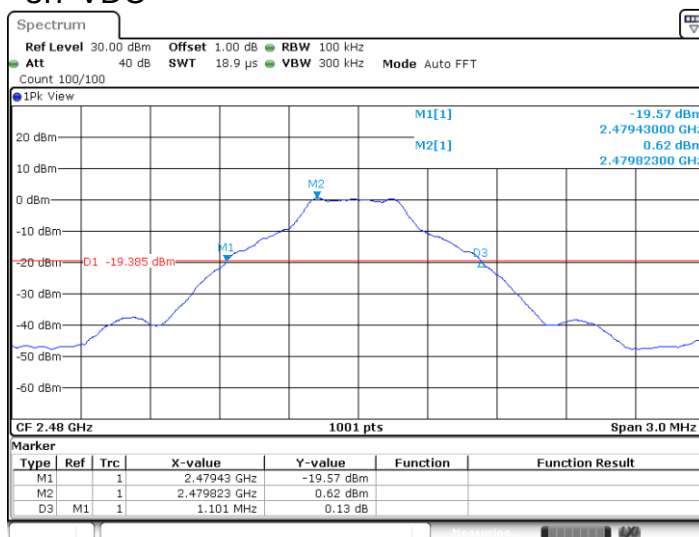
HG06610A-US

Operated, TX Mode (2480MHz, DH5)

FCC15.247(a)(2), 20dB Bandwidth & 99% Bandwidth

3.7 VDC

Test Result

☒ Passed☐ Not Passed

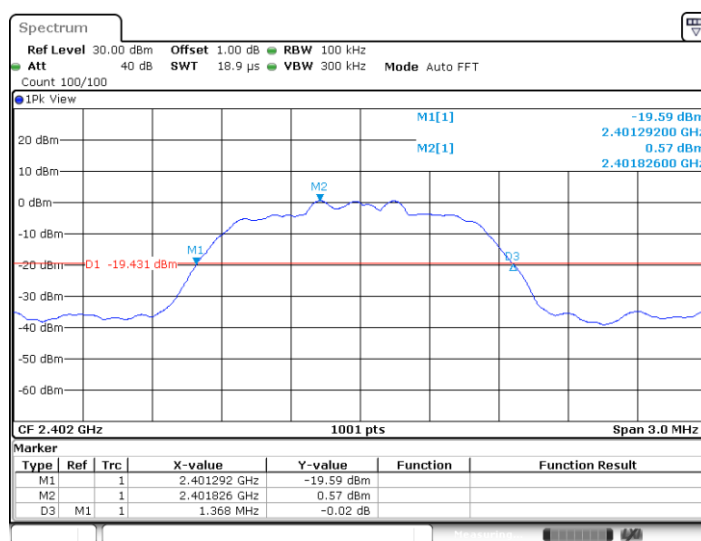
20dB bandwidth	99% bandwidth
1.101 MHz	0.839 MHz

20dB & 99% Bandwidth

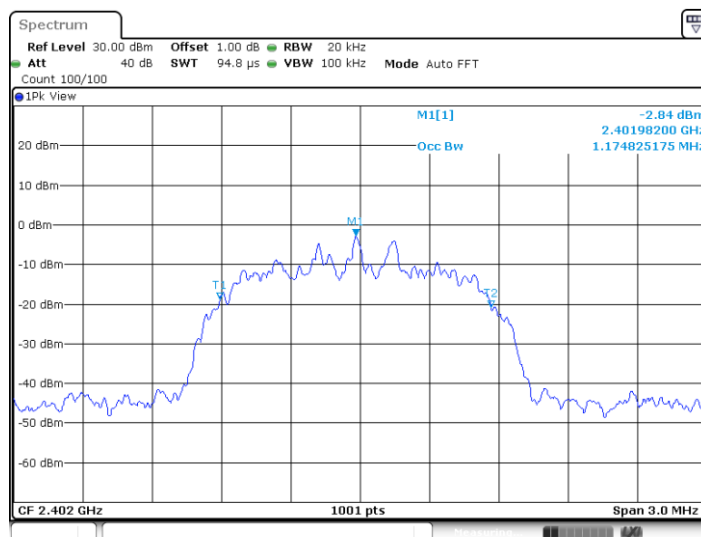
EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2402MHz, 2DH5)
 Test Specification: FCC15.247(a)(2), 20dB Bandwidth & 99% Bandwidth
 Comment: 3.7 VDC

Test Result

☒ Passed
☐ Not Passed



Date: 21.MAY.2020 12:01:50



Date: 21.MAY.2020 12:02:01

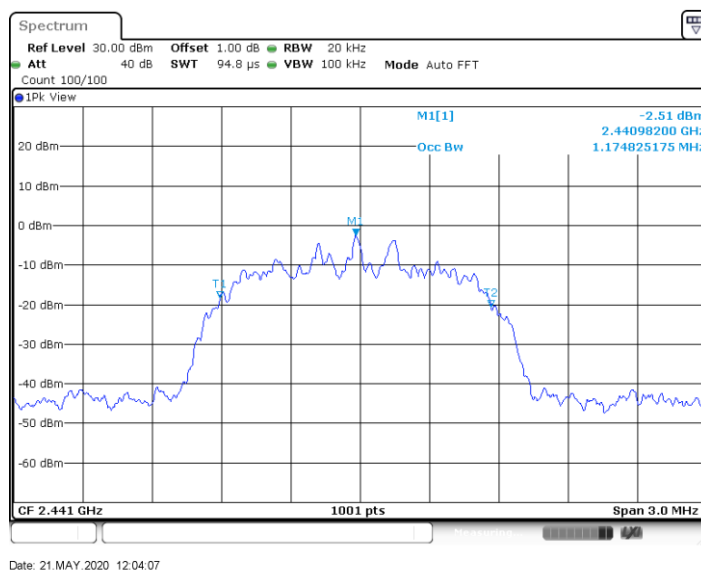
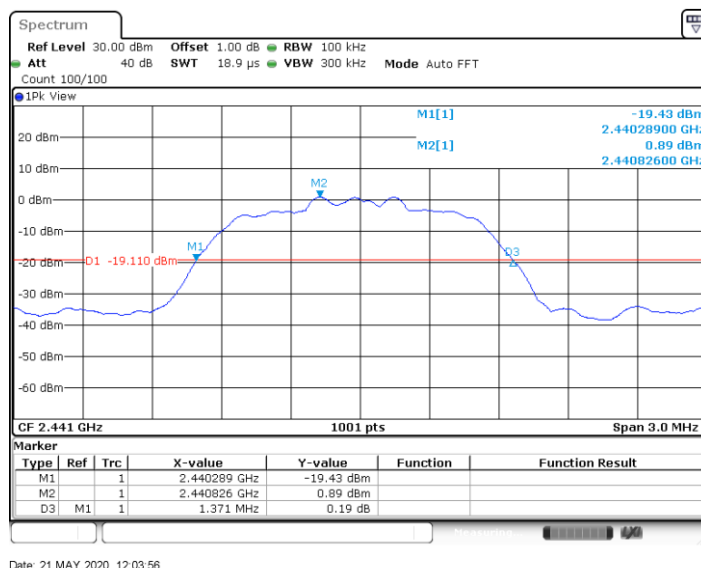
20dB bandwidth	99% bandwidth
1.368 MHz	1.175 MHz

20dB & 99% Bandwidth

EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2441MHz, 2DH5)
 Test Specification: FCC15.247(a)(2), 20dB Bandwidth & 99% Bandwidth
 Comment: 3.7 VDC

Test Result

☒ Passed
☐ Not Passed



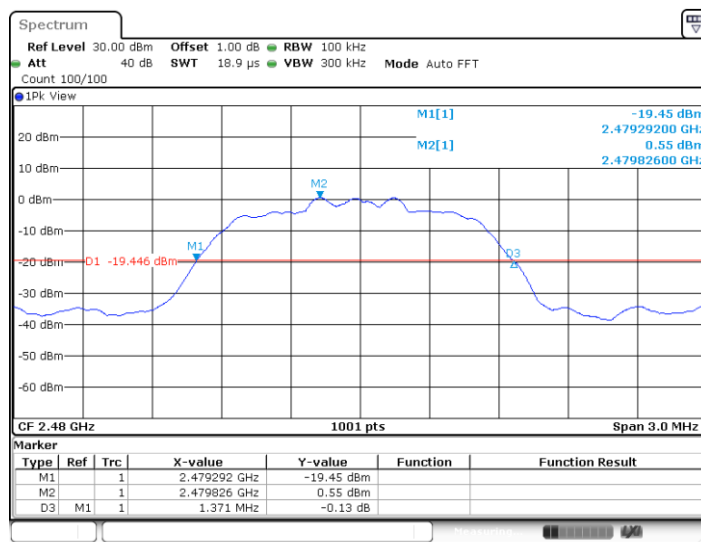
20dB bandwidth	99% bandwidth
1.371 MHz	1.175 MHz

20dB & 99% Bandwidth

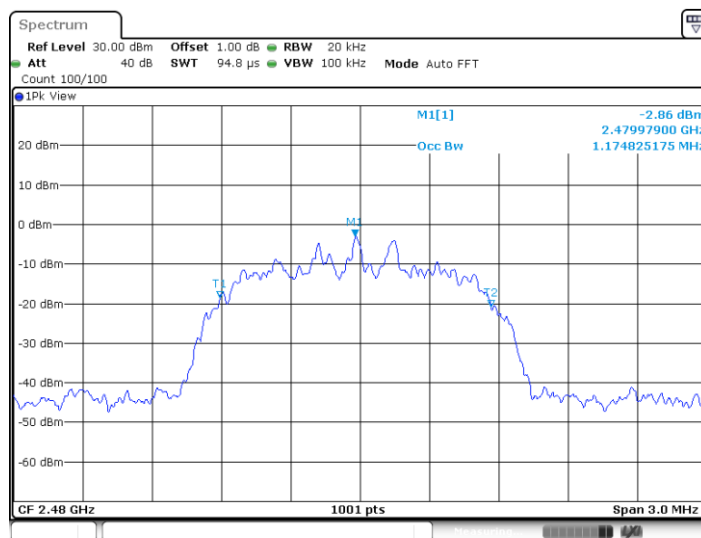
EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2480MHz, 2DH5)
 Test Specification: FCC15.247(a)(2), 20dB Bandwidth & 99% Bandwidth
 Comment: 3.7 VDC

Test Result

☒ Passed
☐ Not Passed



Date: 21 MAY 2020 12:05:21



Date: 21 MAY 2020 12:05:32

20dB bandwidth	99% bandwidth
1.371 MHz	1.175 MHz

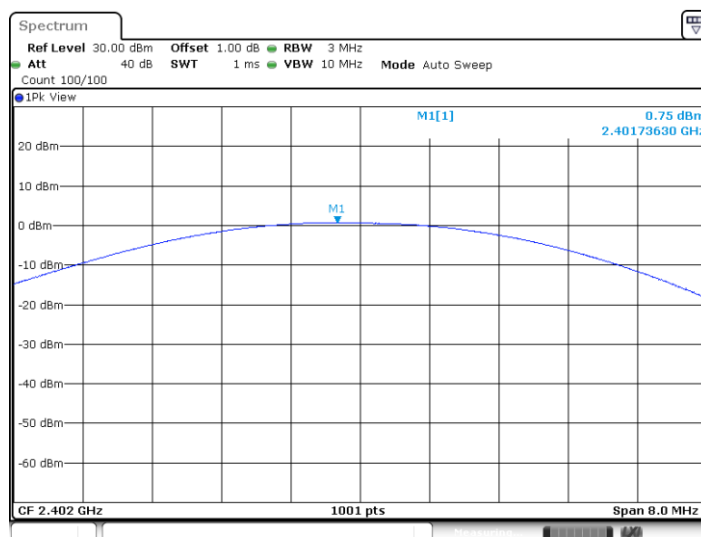
8.4 Peak Output Power

EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2402MHz, DH5)
 Test Specification: FCC15.247(b)
 Comment: 3.7 VDC

Test Result

☒ Passed

☐ Not Passed



Date: 21.MAY.2020 12:22:18

Conducted Output Power (dBm)	Conducted Output Power (mW)	Limit (mW)
0.75	1.19	1000.0

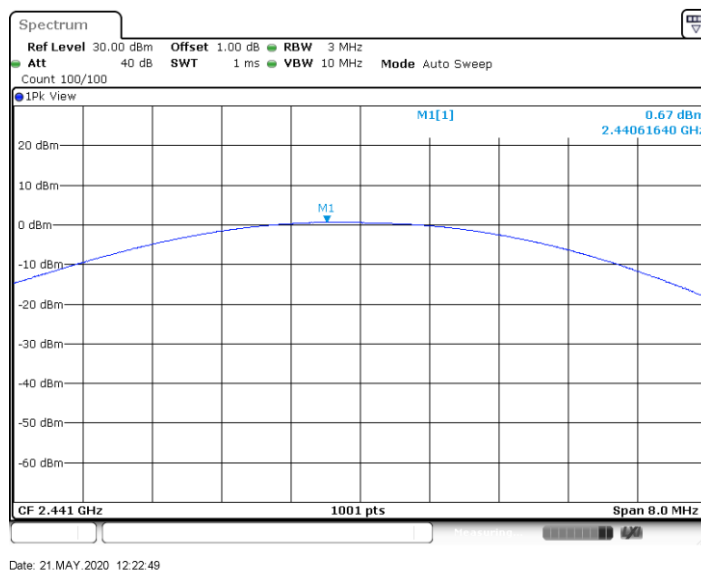
Peak Output Power

EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2441MHz, DH5)
 Test Specification: FCC15.247(b)
 Comment: 3.7 VDC

Test Result

☒ Passed

☐ Not Passed



Conducted Output Power (dBm)	Conducted Output Power (mW)	Limit (mW)
0.67	1.17	1000.0

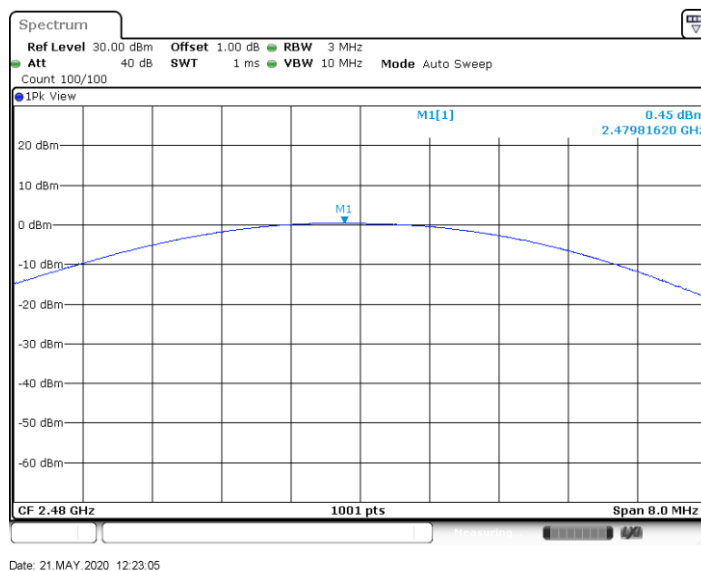
Peak Output Power

EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2480MHz, DH5)
 Test Specification: FCC15.247(b)
 Comment: 3.7 VDC

Test Result

☒ Passed

☐ Not Passed



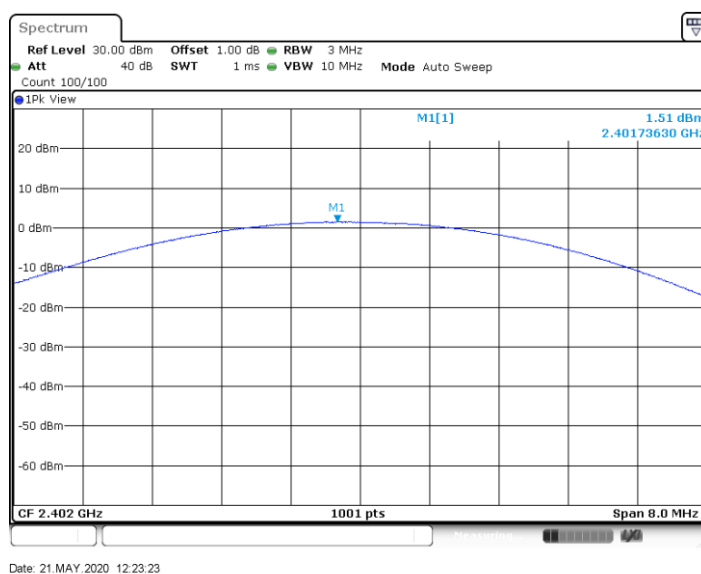
Date: 21.MAY.2020 12:23:05

Conducted Output Power (dBm)	Conducted Output Power (mW)	Limit (mW)
0.45	1.11	1000.0

Peak Output Power

EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2402MHz, 2DH5)
 Test Specification: FCC15.247(b)
 Comment: 3.7 VDC

Test Result

☒ Passed☐ Not Passed

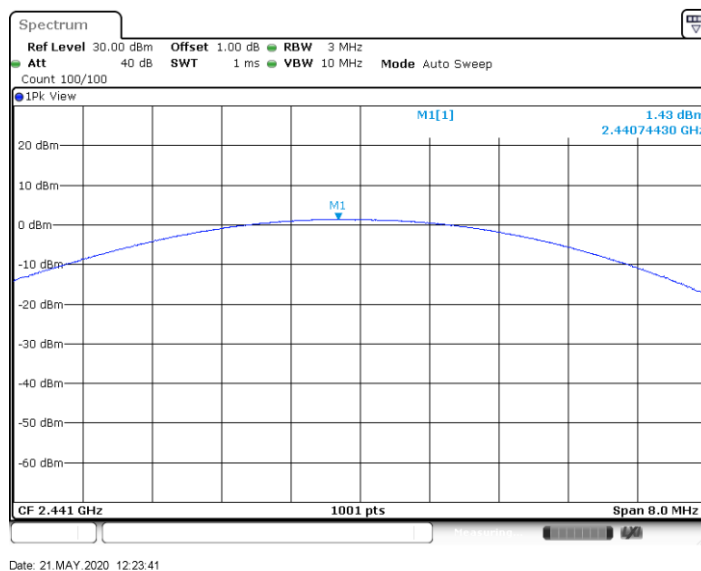
Conducted Output Power (dBm)	Conducted Output Power (mW)	Limit (mW)
1.51	1.42	1000.0

Peak Output Power

EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2441MHz, 2DH5)
 Test Specification: FCC15.247(b)
 Comment: 3.7 VDC

Test Result

☒ Passed
☐ Not Passed



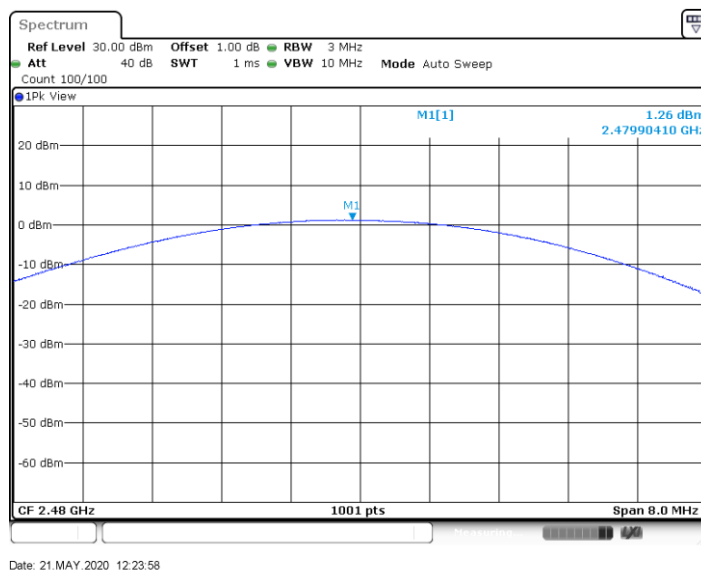
Conducted Output Power (dBm)	Conducted Output Power (mW)	Limit (mW)
1.43	1.39	1000.0

Peak Output Power

EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2480MHz, 2DH5)
 Test Specification: FCC15.247(b)
 Comment: 3.7 VDC

Test Result

☒ Passed

☐ Not Passed


Conducted Output Power (dBm)	Conducted Output Power (mW)	Limit (mW)
1.26	1.34	1000.0

8.5 Spurious Emissions at Antenna Terminals

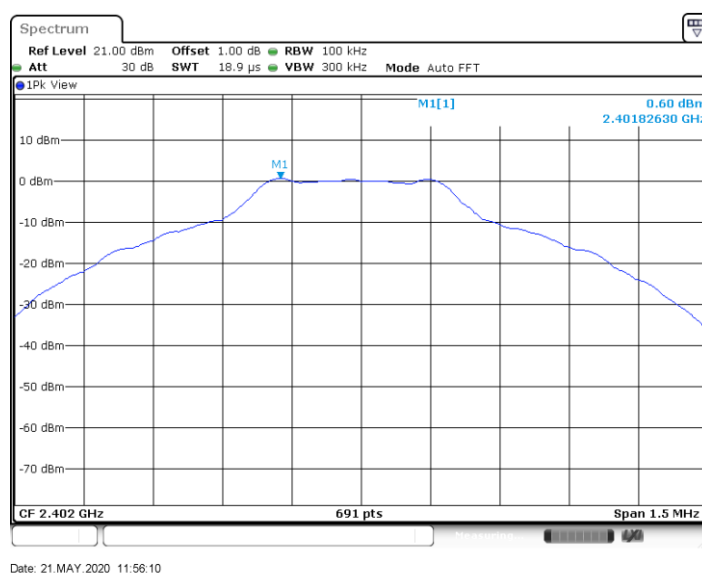
EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2402MHz, 2DH5)
 (Worst case)
 Test Specification: FCC2.1051 & 15.247(d)
 Comment: 3.7 VDC

Test Result

☒ Passed

☐ Not Passed

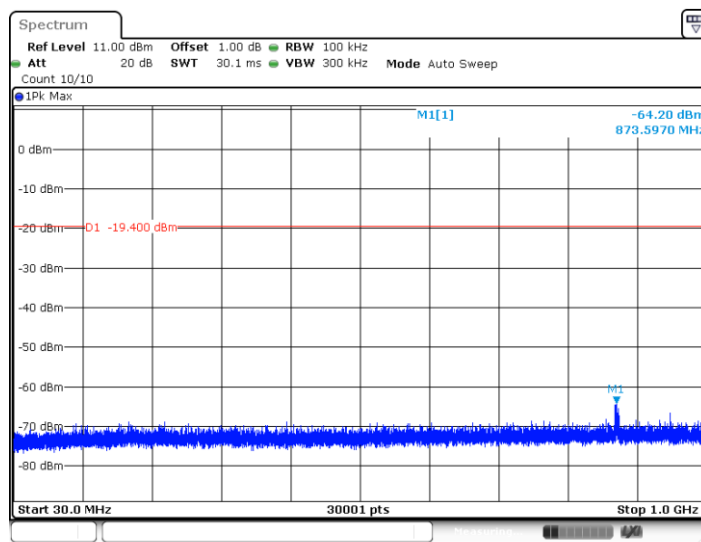
Channel	FreqRange	RefLevel	Result	Limit	Verdict
2402	Reference	0.60	---	---	PASS
2402	30~1000	0.60	-64.2	<=-19.4	PASS
2402	1000~26500	0.60	-25.21	<=-19.4	PASS



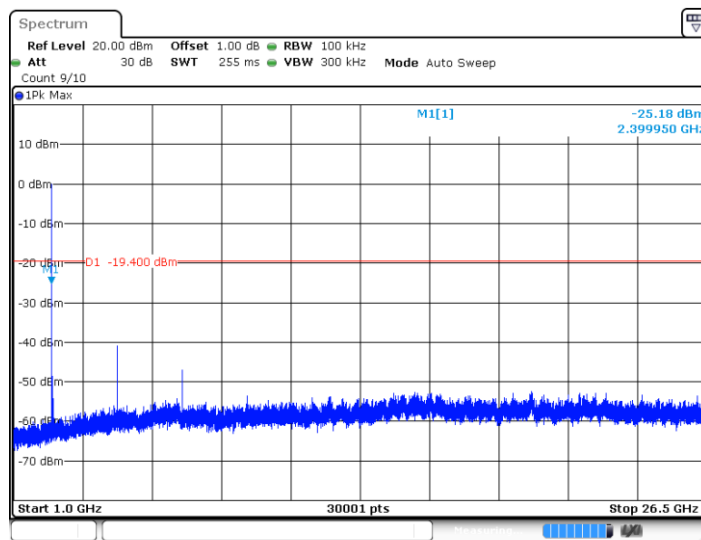
Spurious Emissions at Antenna Terminals

EUT: HG06610A-US
Op Condition: Operated, TX Mode (2402MHz, 2DH5)
(Worst case)
Test Specification: FCC2.1051 & 15.247(d)
Comment: 3.7 VDC

Test Result

☒ Passed☐ Not Passed

Date: 21 MAY 2020 11:56:16



Date: 21 MAY 2020 11:56:24

Spurious Emissions at Antenna Terminals

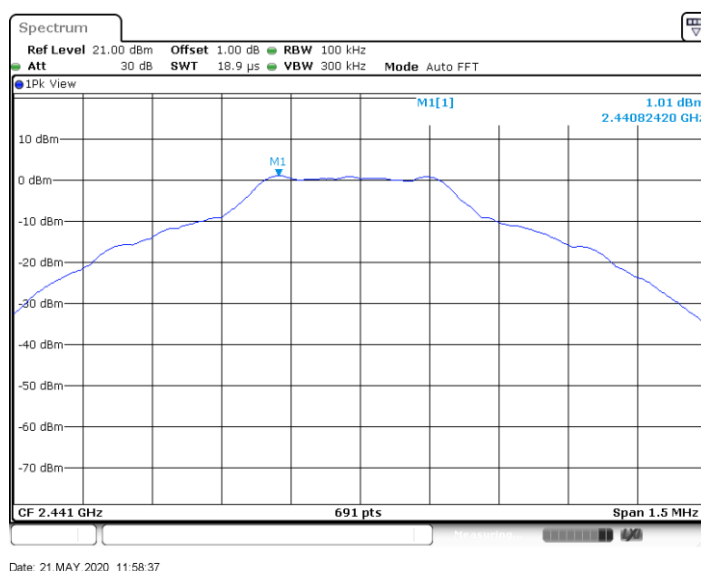
EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2441MHz, 2DH5)
 (Worst case)
 Test Specification: FCC2.1051 & 15.247(d)
 Comment: 3.7 VDC

Test Result

☒ Passed

☐ Not Passed

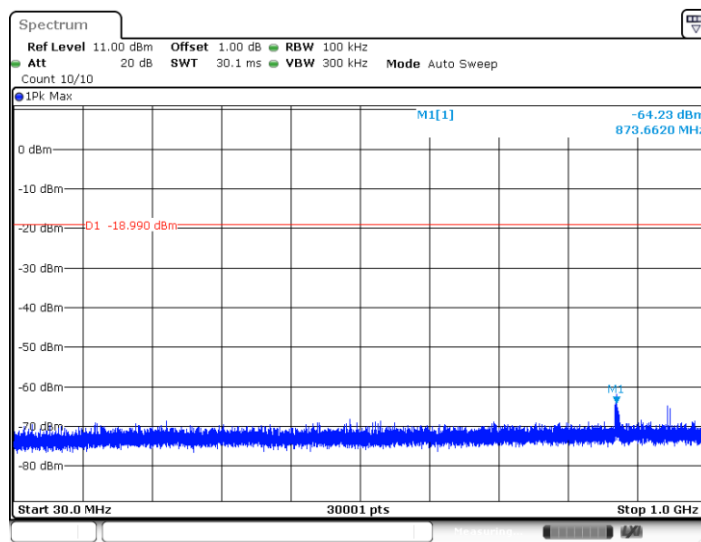
Channel	FreqRange	RefLevel	Result	Limit	Verdict
2441	Reference	1.01	---	---	PASS
2441	30~1000	1.01	-64.23	<=-18.99	PASS
2441	1000~26500	1.01	-43.22	<=-18.99	PASS



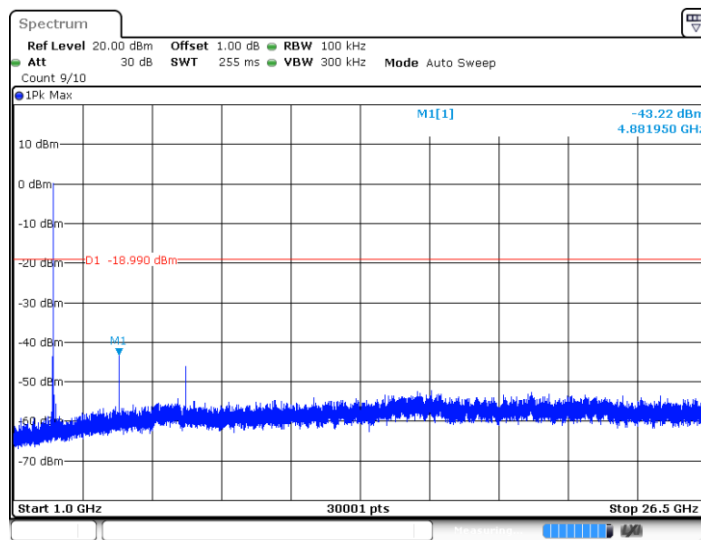
Spurious Emissions at Antenna Terminals

EUT: HG06610A-US
Op Condition: Operated, TX Mode (2441MHz, 2DH5)
(Worst case)
Test Specification: FCC2.1051 & 15.247(d)
Comment: 3.7 VDC

Test Result

☒ Passed☐ Not Passed

Date: 21 MAY 2020 11:58:43



Date: 21 MAY 2020 11:58:51

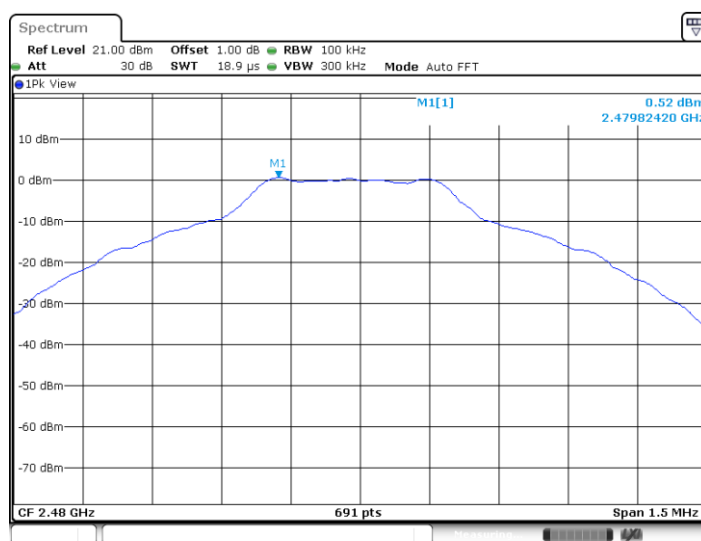
Spurious Emissions at Antenna Terminals

EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2480MHz, 2DH5)
 (Worst case)
 Test Specification: FCC2.1051 & 15.247(d)
 Comment: 3.7 VDC

Test Result

☒ Passed☐ Not Passed

Channel	FreqRange	RefLevel	Result	Limit	Verdict
2480	Reference	0.52	---	---	PASS
2480	30~1000	0.52	-64.69	<=-19.48	PASS
2480	1000~26500	0.52	-41.62	<=-19.48	PASS

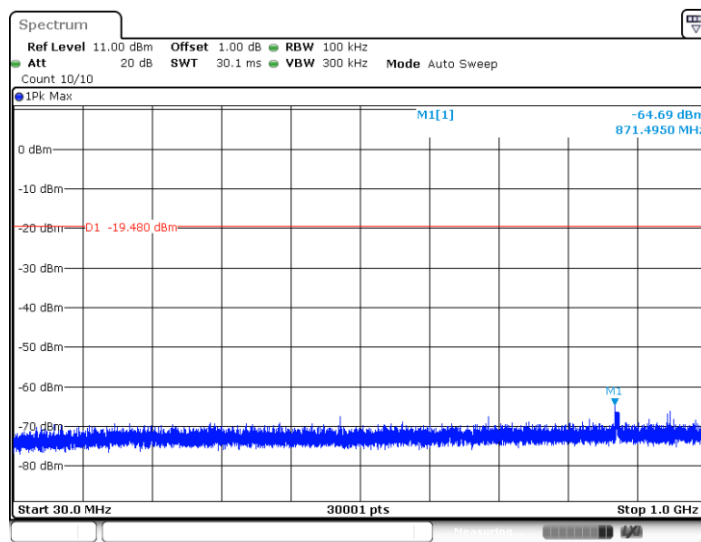


Date: 21 MAY 2020 12:00:08

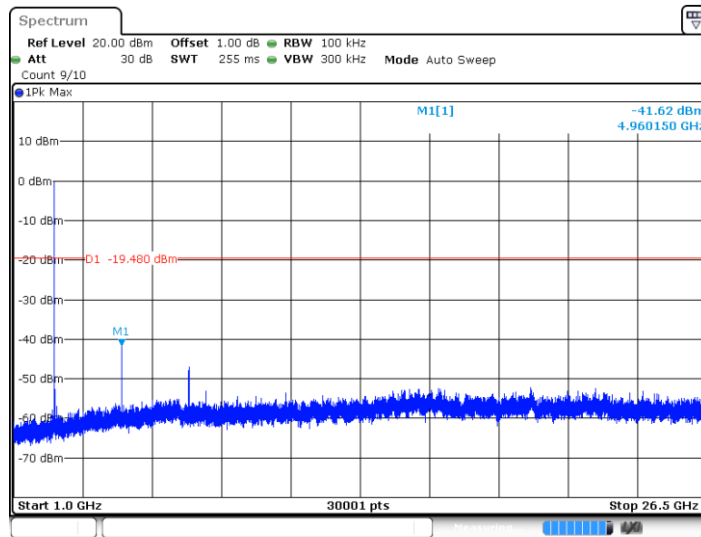
Spurious Emissions at Antenna Terminals

EUT: HG06610A-US
Op Condition: Operated, TX Mode (2480MHz, 2DH5)
(Worst case)
Test Specification: FCC2.1051 & 15.247(d)
Comment: 3.7 VDC

Test Result

☒ Passed☐ Not Passed

Date: 21 MAY 2020 12:00:14

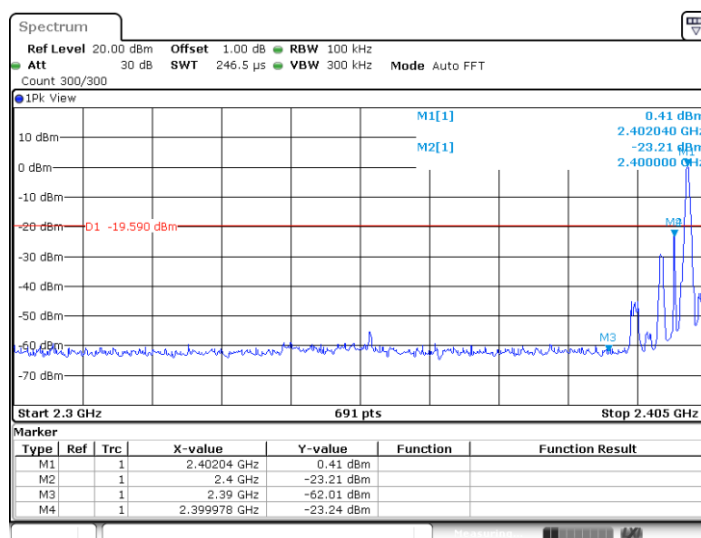


Date: 21 MAY 2020 12:00:22

8.6 100kHz Bandwidth of band edges

EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2402MHz, DH5)
 (Worst case)
 Test Specification: FCC15.247(d), Conducted
 Comment: 3.7 VDC

Test Result

☒ Passed☐ Not Passed

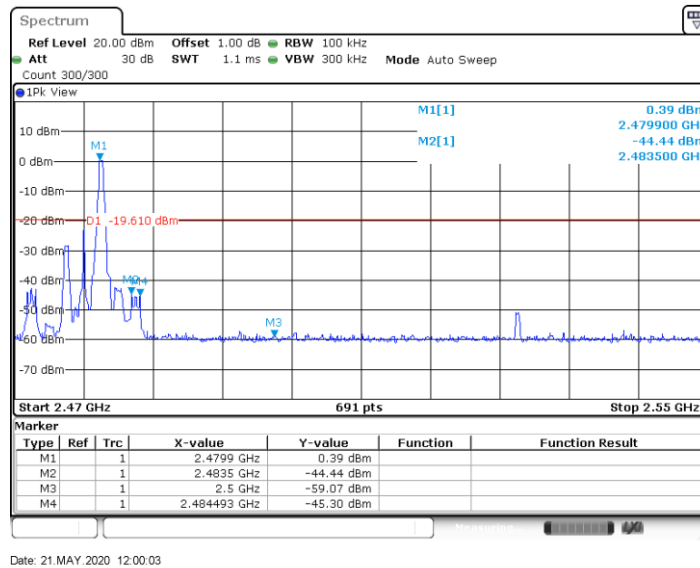
Date: 21.MAY.2020 11:56:04

Band edges	Limit
23.62 dB	> 20dB

100kHz Bandwidth of band edges

EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2480MHz, DH5)
 (Worst case)
 Test Specification: FCC15.247(d), Conducted
 Comment: 3.7 VDC

Test Result
☒ Passed
☐ Not Passed



Band edges	Limit
44.83 dB	> 20dB

100kHz Bandwidth of band edges

EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2405MHz and 2480MHz, DH5) (Worst case)
 Test Specification: FCC15.247(d), Radiated
 Comment: 3.7 VDC

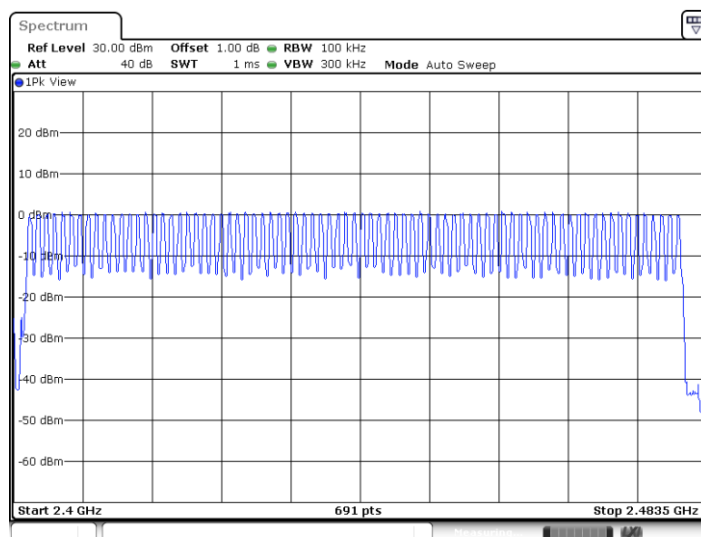
Test Result
☒ Passed
☐ Not Passed

Frequency MHz	Result dB μ V/m	Limit dB μ V/m	Margin dB	Detector PK /AV	Ant. Polarity H/V	Corr. (dB)
2400.00	70.56	74.00	-3.44	Peak	H	-4.8
2400.00	46.33	54.00	-7.67	Average	H	-4.8
2400.00	68.85	74.00	-5.15	Peak	V	-4.8
2400.00	45.90	54.00	-8.10	Average	V	-4.8
2483.50	48.18	74.00	-25.82	Peak	H	-4.2
2483.50	32.65	54.00	-21.35	Average	H	-4.2
2483.50	49.06	74.00	-24.94	Peak	V	-4.2
2483.50	35.17	54.00	-18.83	Average	V	-4.2

8.7 Minimum. Number of Hopping Frequencies

EUT: HG06610A-US
Op Condition: Operated, TX Mode (2402-2480MHz, DH5)
Test Specification: FCC15.247(a)(1)
Comment: 3.7 VDC

Test Result

☒ Passed☐ Not Passed

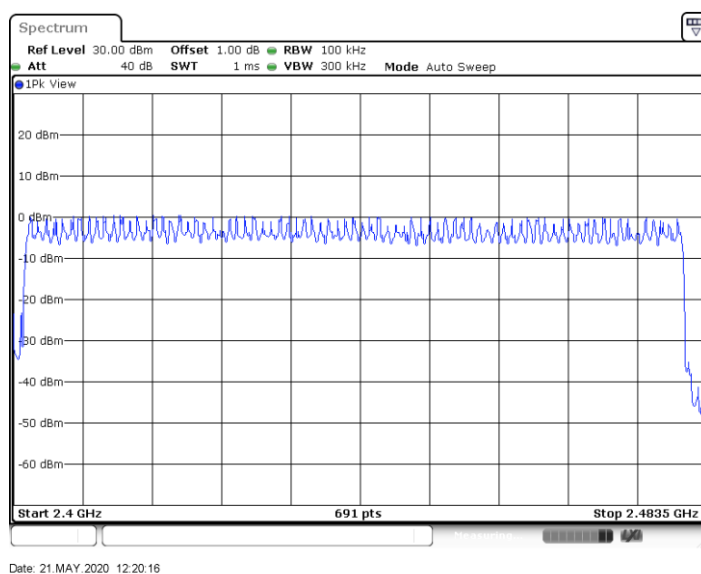
Date: 21.MAY.2020 12:10:07

Hopping Channels	Limit
79	≥ 15

Minimum. Number of Hopping Frequencies

EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2402-2480MHz, 2DH5)
 Test Specification: FCC15.247(a)(1)
 Comment: 3.7 VDC

Test Result	
☒	Passed
☐	Not Passed



Hopping Channels	Limit
79	≥ 15

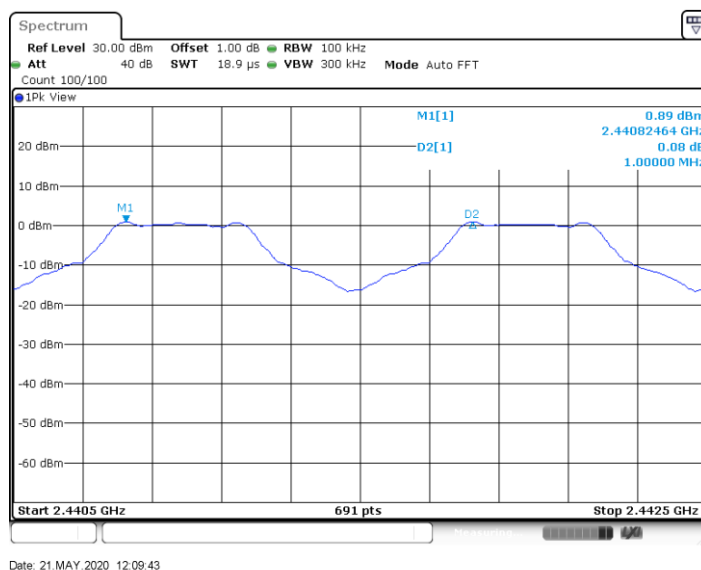
8.8 Minimum Hopping Channel Carrier Frequency Separation

EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2441MHz, DH5)
 Test Specification: FCC15.247(a)(1)
 Comment: 3.7 VDC

Test Result

☒ Passed

☐ Not Passed



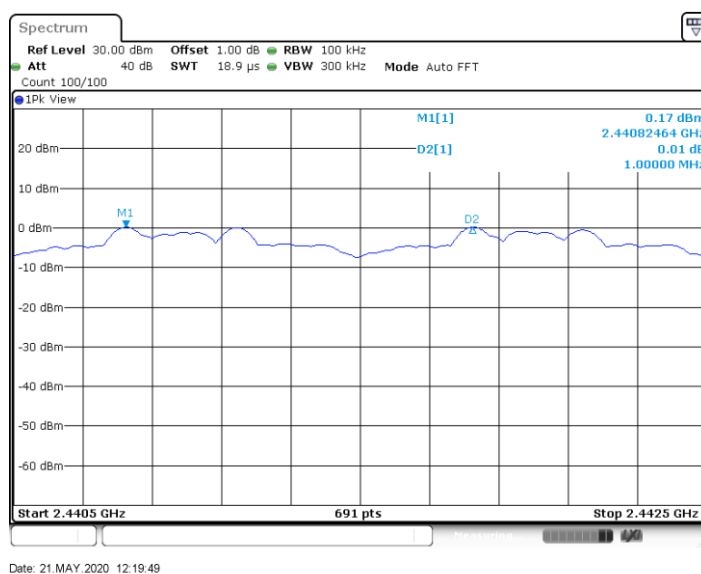
Chanel Separation	Limit
1000 kHz	736 kHz

Limit: 2/3 of 20dB bandwidth of hopping channel

Minimum Hopping Channel Carrier Frequency Separation

EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2441MHz, 2DH5)
 Test Specification: FCC15.247(a)(1)
 Comment: 3.7 VDC

Test Result

☒ Passed☐ Not Passed

Channel Separation	Limit
1000 kHz	914 kHz

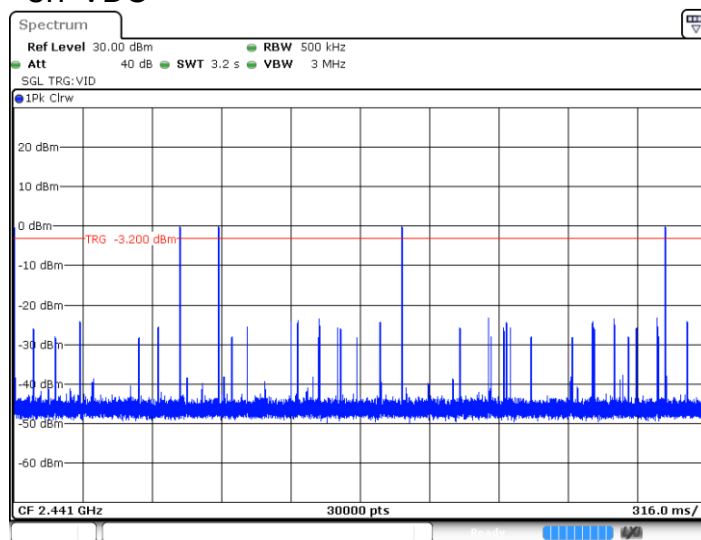
Limit: 2/3 of 20dB bandwidth of hopping channel

8.9 Average Channel Occupancy Time

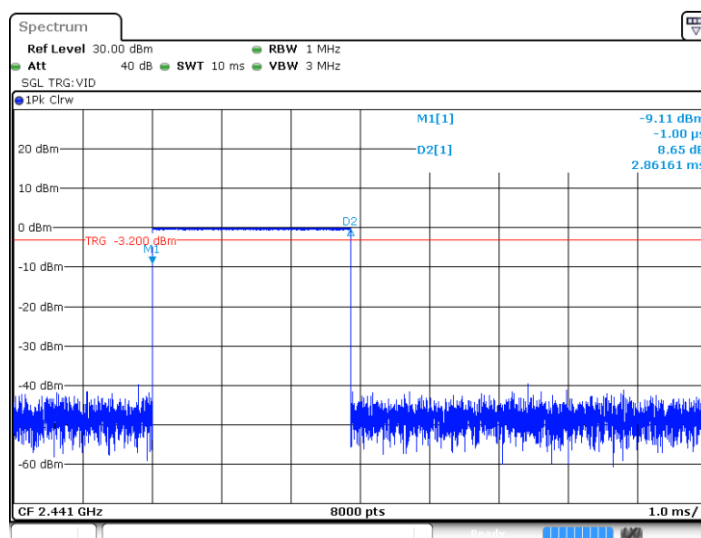
EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2441MHz, DH5)
 Test Specification: FCC15.247(a)(1)
 Comment: 3.7 VDC

Test Result

☒ Passed
☐ Not Passed



Date: 21 MAY 2020 12:10:25



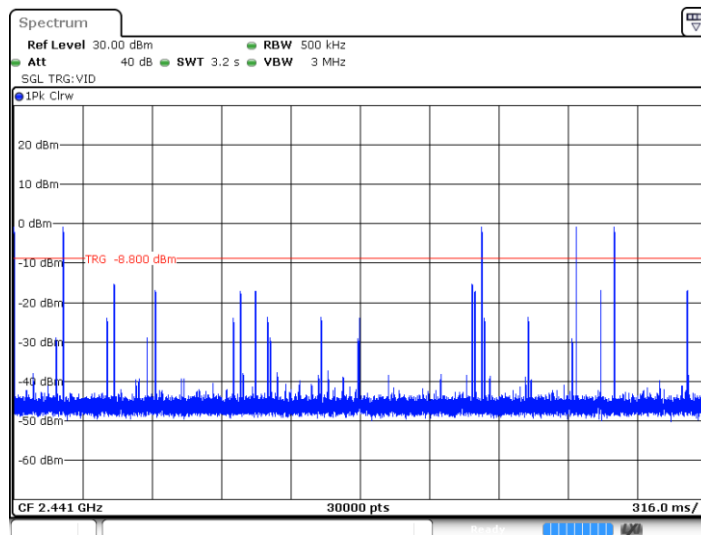
Date: 21 MAY 2020 12:10:19

Average time of occupancy	Limit
Number of hops in 3.16 sec.: 4 Period: 0.4 x 79 Ch. = 31.6 sec. Total number of hops in 31.6 sec.: $4 \times 31.6 / 3.16 = 40$ Time of single pulse: 2.862ms Average time of occupancy: $2.862\text{ms} \times 40 = 0.1048\text{sec.}$	0.4 Seconds

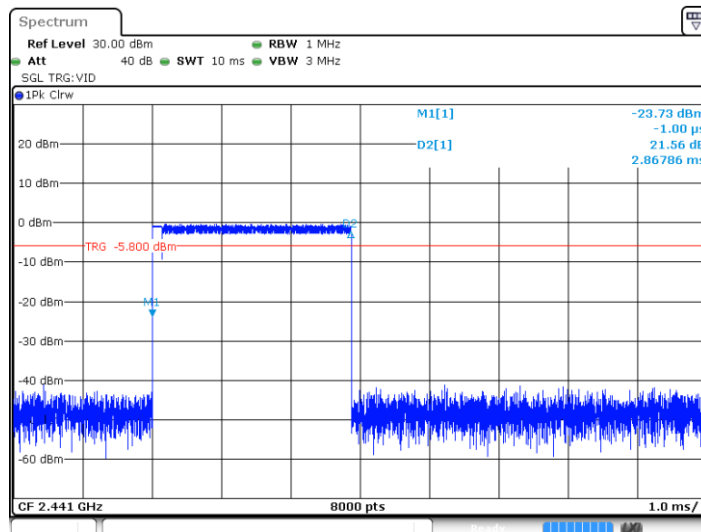
Average Channel Occupancy Time

EUT: HG06610A-US
 Op Condition: Operated, TX Mode (2441MHz, 2DH5)
 Test Specification: FCC15.247(a)(1)
 Comment: 3.7 VDC

Test Result

☒ Passed☐ Not Passed

Date: 21.MAY.2020 12:20:30



Date: 21.MAY.2020 12:20:25

Average time of occupancy	Limit
Number of hops in 3.16 sec.: 4 Period: $0.4 \times 79 \text{ Ch.} = 31.6 \text{ sec.}$ Total number of hops in 31.6 sec.: $4 \times 31.6 / 3.16 = 40$ Time of single pulse: 2.868ms Average time of occupancy: $2.868\text{ms} \times 40 = 0.1147\text{sec.}$	0.4 Seconds

8.10 Antenna Requirement

EUT: HG06610A-US
Op Condition: Operated, TX Mode
Test Specification: FCC15.203 & 15.247(b)
Comment: 3.7 VDC

Test Result☒ Passed☐ Not Passed

Limit

For intentional device, according to FCC Title 47 Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC Title 47 Part 15.247(b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

The antenna used in this product is a PCB antenna, and the maximum gain of it is -0.58dBi.

9 Appendix A - General Product Information

Radiofrequency radiation exposure evaluation

This exposure evaluation is intended for **FCC ID: 2AJ90-HG661**.

According to KDB 447498 D01v06 section 4.3.1, For frequencies between 100 MHz to 6GHz and test separation distances ≤ 50 mm, the Numeric threshold is determined as

Step a)

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR

>> The fundamental frequency of the EUT is 2402-2480MHz,
the test separation distance is ≤ 50 mm.
(Manufacturer specified the separation distance is: 5mm)

Step a)

>> Numeric threshold (2402MHz), $\text{mW} / 5\text{mm} \cdot \sqrt{2.402\text{GHz}} \leq 3.0$
Numeric threshold (2402MHz) $\leq 9.678\text{mW}$

>> Numeric threshold (2440MHz), $\text{mW} / 5\text{mm} \cdot \sqrt{2.441\text{GHz}} \leq 3.0$
Numeric threshold (2440MHz) $\leq 9.601\text{mW}$

>> Numeric threshold (2480MHz), $\text{mW} / 5\text{mm} \cdot \sqrt{2.480\text{GHz}} \leq 3.0$
Numeric threshold (2480MHz) $\leq 9.525\text{mW}$

>> The power of EUT measured (2402MHz) is: 1.51dBm = 1.42mW
The power of EUT measured (2440MHz) is: 1.43dBm = 1.39mW
The power of EUT measured (2480MHz) is: 1.26dBm = 1.34mW
Which is smaller than the Numeric threshold.

>>Therefore, the device is exempt from stand-alone SAR test requirements.

Appendix A

Declaration letter of model difference

LIDL US, LLC

To: TÜV SÜD Hong Kong Limited

Attention: Edmond Fung

From:

Date: 15 June, 2020

Fax No:

Total Page (Cover Included): 1

Project No.: 60.792.20.005.01

Subject: Declaration letter

We: Lidl US LLC.
3500 South Clark Street, Arlington, VA 22202

Officially notify TÜV SÜV Hong Kong Limited that the <<Model A>> have the same technical construction including circuit diagram, PCB Layout, components and component layout, all electrical construction and mechanical construction, with <<PRODUCT>>, <<Model B>>. The difference lies only in the outlook/color of the different models.

<<Model A>>: HG06610B-US

<<Model B>>: HG06610A-US

<<Product>>: Bluetooth speaker

Applicant:

15-Jun-2020



Name: Maxwell Hand
Job Title: Sr GA Mgr

Elizabeth Sullivan
QA Manager

(Date)

(Applicant's authorized signature and company Chop)